

Seat area

Technical Field

5 The seat area being an object of the invention belongs to the technical field of sitting furniture, intended for schools, offices, household, catering institutions, transport vehicles and special working places requiring a longlasting sitting.

Background Art

10 Known are solutions of chair seats with a compact area whose parts in the anal and genitals location are free and/or have a possibility of getting free by means of an inserted section having various thickness. In an alternative solution the inserted area is continually displaceable. Such solution is known from the utility model DE 9416674.9. It represents a solution of a seat area having a recess in the location of the anal outlet, genitals and tailbone, the femoral parts being stabilized by rotary areas serving for constriction of the movements of a physically disabled person.

15 The patent specification DE 441479 shows a solution of a seat area composed of two tilting planes. The solution according to US 4643 481 Patent is a seat area consisting of two channel-like sections for location of the thighs with the aim of their stabilization, while in the area of the anal outlet the seat has a mushroom-like throughgoing opening. The
20 seat area can be tilted.

The solutions mentioned above are suitable only for physically disabled persons and their aim is constricting the movements of the sitting part of a sitting person. They do not solve the origin of the diseases, resulting above all from a longlasting sitting on seats of e.g.
25 chairs, armchairs etc. Their limitation is a complicated structure, which also affects their overall appearance.

A considerable disadvantage of known solutions is in that the sitting area is designed as a rigid structure with no or with only an insufficient adaptability of its form to the forms and dimensions of the user. They bring no really complete solution of the essential problem,
30 arising from a longlasting sitting because of the said lack of adaptability to the anatomic forms and dimensions

Disclosure of Invention

35 The limitations of known sitting areas, above all their utilization limited mostly to physically disabled persons only, their complicated structure, a poor possibility of an esthetic design generally insufficiently reflecting physiological marks of sitting persons, are removed in a large extent by the solution according to the invention, the basic idea of which being in that the seat area has a form shaped by the elastic deformation
40 of at least one at least single-part flat blank.

The flat blank is delimited by two concentric circular arches with a center angle of 10° to 170° , continued as their tangents at the arch ends and ending by normal lines at the ends of the tangents.

45 The deformation of the flat blank is obtained by its fastening in at least three points of the carrying structure. Fastening of the blank ends, i.e. of the normal lines, is made so that the normal lines are supported on conical areas with a top at the center of a connecting line of the inner ends of the normal lines and with a top angle of 0° to 10° . The third fastening point is in the central part, i.e. at the place of the arch tops.
50 After the fastening the intersection line of the seat area forms with its vertical symmetry plane and the horizontal plane an angle of 15° to 90° . In the central part at least one sleeve is situated, fitted with an element, which is fastened preferably with freedom of shifting and rocking on the carrying structure, so that the sleeve can make rocking motions in all
55 directions.

If it is required to change the width of the seat area, the latter can be made of two sections of the flat blank. The ends of said sections are adapted at the place of their contact as compatible with each other and are fastened in an assembly, allowing to change the distance between
60 the ends of said sections.

The seat area can be manufactured as a molded piece or of an elastic single-layer stuff or of sandwich-type materials or their combination.

65 In all modifications the blank or section rims can have a form modified shape.

Brief Description of Drawings

The substance of the invention is explained more in detail in the enclosed drawings, in which Fig. 1 shows schematically the flat blank, Fig. 2 shows schematically the blank in its deformed condition, Fig. 3 is a side view of an armchair with a seat area, Fig. 4 is a plan view of an
70 armchair with the seat area, Fig. 5 is the mechanism in its basic position and Fig. 6 shows the mechanism in a first increased spacing of the extremities of the seat area sections.

Examples of Execution of the Invention

75 Example 1

The example shows the seat area 1 as fastened on the carrying structure of an armchair 5. The basic dimensions of the seat area are:

- width of the seat area $w = 450$ mm
- spacing of inner tangents $d = 110$ mm
- 80 - depth of the seat area $h = 450$ mm
- central angle $\alpha = 90^{\circ}$
- angle of the intersection line $\beta = 70^{\circ}$.

85 The carrying structure 5 consists of a level carrying tube 5.1 on both extremities of which the armchair foots 5.2 are fastened. At the middle of the carrying tube 5.1 a carrying bracket 5.3 is fastened. The blank 2 is fitted in its central part 3 with a sleeve 4 on which a fastening element 4.1 is situated.

90 An elastic deformation of the blank 2 is obtained in fixing it by the ends of its normals n_1 , n_2 to the carrying tube 5.1 and in fixing its central part 3 by means of the sleeve 4 with its fastening element 4.1 to the bracket 5.3. The fastening element 4.1 is suspended on the bracket 5.3 on a sliding hinge, giving it a freedom of rocking movements. The implementation shows an angle $\beta=70^\circ$. The seat area 1 is made of a single-layer elastic stuff.

95 Example 2

100 The example shows an armchair with a carrying structure 5 and a seat area 1 of identical dimensions and forms of Example 1. The seat area 1 is made of a blank 2 composed of two sections 2.3, 2.4, where a joint of the two sections 2.3, 2.4 is performed by means of a mechanism 6, permitting to change the spacing of the extremities of said sections and consequently enabling a widening or narrowing of the seat area 1. The mechanism 6 is fastened with freedom of shifting on the bracket 5.3 of the carrying structure 5, and it replaces the sleeve 4. A simple implementation of the mechanism 6 is in that two openings 2.31, 2.32 and 2.41, 2.42 respectively with identical spacing are shaped on compatibly modified extremities of sections 2.3, 2.4. An overlapping sheet 6.1 is fastened to the bracket 5.3 by means of a nut 6.3 and a screw 6.2, the screw 6.2 being slung through suitably chosen openings 2.31 or 2.32 and 2.41 or 2.42 respectively.